T7 93.At7.8/2
MDOC-1002

MDDC - 1002

UNITED STATES
ATOMIC ENERGY COMMISSION
OAK RIDGE
TENNESSEE

SUMMARY OF METABOLISM OF CARRIER-FREE FISSION PRODUCTS IN THE RAT

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Date of Manuscript: Unknown

Document Declassified: May 14, 1947

This document consists of 3 pages.

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Element	Oral absorption & % deposition of absorbed fraction	Retention at 4 days following parenteral administration	Excretion, route, & daily rate at indicated intervals following parenteral administration	Retention in lungs & other organs at indicated intervals following direct administration into lungs
Strontium (Sr^{85})	4D = 15% 64D = 10% (skeleton 95%)	Sk. = 70% (50% at 64 days) other tissues total < 1%	Total 64D = 50% U = 12% F = 38% Rate d^{-1} 4D = 1.5% 30D = 0.3%	May be expected to resemble Barium
Yttrium (Y^{86})	4D = 0.2%	Sk. = 60% Li. = 13% (At 64D Sk. = 55% Li. = 0.5%)	Total 64D = 33% U = 6% F = 27% Rate d^{-1} 4D = 1.5% 16D = 0.4% 64D = 0.05%	Lng. Sk. Liver 2D 40% 40% 5% 4D 25% 55% 7%
Zirconium (Zr^{89})	4D = < .01%	Sk. = 7% Bld.= 1.5% Unabsorbed at 4D = 85%	Total 4D = 1.2% Rate d^{-1} 4D = 0.3%	4D 92% 4% 0.4% 16D 90% 3% 1%
Columbium (Cb^{93})	Probably < 1%	Preliminary experiments indicate behavior similar to Zr.		
Ruthenium (Ru^{105})	4D = <.01%	Sk. = 7% Kid. = 2.5% Li. = 2% At 16D Sk. = 5%, Kid. = 1.4% Li. = 1.5%	Total 16D = 73% (U = 38% F = 35%) Rate d^{-1} 4D = 4% 16D = 0.8% 64D = %	Lng. Sk. Kid. 4D 65% 2% 5% 16D 58% 7% 7% 64D

*See abbreviations last page.

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(con't)

Iodine (I^{131})	(Normal Adult Human) 2 hrs ~ 100%. 20% in Thyroid. 1D 20%, at 30D, no concentration elsewhere	Presumed same as oral in human	Total 4D~ 60% All via Kidneys (human data)	Not done yet Pulmonary retention probably small, and distribution similar to oral administration
Xenon (Xe^{127})	Uptake by inhalation only. Time for half saturation in adult human approximately two hours. Tissues in rats at full equilibrium expressed as subscript C. (C = Xe^{127} gm^{-1} tissue/Xe^{127} cc^{-1} gas mixture.) C proportional to fat content of tissue—e.g., Fat_C = 2, $Blood_C$ = .1, Entire animal $_C$ = 0.27			
Barium (Ba^{133})	4D = 8% Sk.> 95%	Sk. 70% other tissue total < 1%	Data not yet available. Probably similar to Sr.	Lng. Sk. Liver 1D < 1% > 90% < 0.1%
Lanthanum (La^{140})	0.3% (almost all found in the liver)	Sk. 25% Li. 28% (At 8D Sk. 25%, Li. 20%)	Total 8D = 27% (U = 2% F = 25%) Rate d^{-1} 4D = 3% 8D = 6%	2D 37% 28% 9% 4D 65% 11% 12%
Cerium (Ce^{140})	< .05%	Sk. 25% Li. 10-20% (At 64D Sk. 23% Li. 4%)	Total 64D = 56% U = 3.4% F = 52.3% Rate d^{-1} 4D = 3% 16D = 1% 64D = 0.5%	4D 73% 8% 6% 8D 59% 15% 13% 16D 36% 30% 17%

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Raw Fission Mixture	4D = 4.7% (Sk. = 82%) 16D = 5.5% (Sk. = 91%) 64D= 6% (Sk. = 90%)	4D Sk. = 37% Li.= 11% 16D Sk. = 39% Li.= 6% 64D Sk. = 47% Li. = 2%	Total 16D = 32% (U = 7% F = 25%) Rate d^{-1} 4D = 3% 16D = 1%	4D 16D 64D	38% 21% 7.5%	36% 61% 74%	6% 7% 3.5%

*Abbreviations used above:

Bld.	- Blood	F	- Feces	Li.	- Liver	Sk.	- Skeleton
D	- Day	Kid.	- Kidney	Lng.	- Lung	U	- Urine

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